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ABSTRACT

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The Importance of Human Needs During Retrospective Peacetime and the Persian Gulf War: University Students in the United States

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Running head: HUMAN NEEDS

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Abstract

The importance of human needs during the retrospective peacetime in 1990 and the Persian Gulf War in 1991 was examined among 564 college students in the United States. Results of factor analyses showed that during peacetime, two factors (higher-order and lower-order needs) were identified. During the war, all needs were rated as more important and only one factor was identified. During peacetime, the safety of one's own life was significantly more important than the safety of the country which was rated as the least important need. During the war, the safety of the country became significantly more important and was as important as the safety of one's own life. Students who had spouse, family members, and friends in the Middle East during Desert Storm differed significantly from those who did not in war-related stress and the importance of several needs.

Key words: Human Needs, Peacetime, Wartime

The Importance of Human Needs During Retrospective Peacetime and the Persian Gulf War: University Students in the United States

Human motivation has emerged as one of the most important topics of interest for researchers and managers in human resource and organizational behavior. Motivation theories can be classified into two major categories: Content theories and process theories (Campbell, Dunnette, Lawler, & Weick, 1970; Campbell & Pritchard, 1976). Among the content theories of motivation, Maslow's (1954) theory of needs hierarchy, Alderfer's (1969) ERG theory, and Herzberg's motivator-hygiene theory (Herzberg, Mausner, & Snyderman, 1959) have examined human needs.

Maslow's theory remains very popular among managers and students of organizational behavior, although there are still very few studies that can legitimately confirm (or refute) it (Pinder, 1984). Maslow's theory does provide an attractive and intuitively acceptable perspective to writers during the "human relations movement" period (Pinder, 1984) and still has a commonsense appeal to managers in our society today (Szilagyi & Wallace, 1990).

The major purpose of the present study is to examine the importance of human needs during retrospective peacetime in 1990 and the Persian Gulf War in 1991 using a sample of college students in the United States. The factor structures and mean differences of needs are investigated by taking the unique advantage of the most important occurring world conflict in 1991. The differences in importance of needs and stress between

students with relations in war and those without are also investigated.

College students in the United States were selected for the present study due to the following reasons. First, college students are very similar to those who have been deployed to the Middle East during the war in terms of their age and background. Second, in the literature of life stress, death of spouse, close family members, and close friends have been considered very stressful events (Holmes & Rahe, 1967). Many college students have spouse, relatives, and friends directly involved in the war. Thus, they may experience a very high level of life stress during this time period.

Third, about two decades ago, many young men between ages 18-25, college students in particular, have been actively involved in avoiding the draft by joining Army ROTC (Staw. 1974). Others have protested the Viet Nam war. When the term "war" or the Viet Nam War is mentioned, it may create many different emotional reactions among people.

Fourth, during the period of Desert Shield and Desert Storm, many college-aged students are afraid of being drafted for this war. Many college students have talked about, and some have actually taken steps to obtain their passports and been ready to flee the country when necessary. On the other hand, some students have been ready to volunteer, serve, and fight for the country if they have been asked by the U.S. Government.

College-aged young men have not been drafted for the Persian Gulf War. It is plausible that college students will also have

high emotional involvements and reactions concerning the war. Therefore, college-aged students will serve as an important sample for studying the importance of needs, war, and stress-related issues.

Human Needs

Maslow (1954) has postulated a hierarchy of human needs incorporating five levels: physiological needs, safety needs, social needs, self-esteem needs, and self-actualization needs. His theory is based on three fundamental assumptions. First, people are wanting human beings whose unsatisfied needs can affect their behavior. Second, people's needs are arranged in an order of importance from physiological needs to self-actualization. Third, when people's needs are satisfied, they advance to the next level of the hierarchy. Later, Maslow (1968) also suggested the rudiments of a two-level hierarchy in his concept of deficiency motivation and growth motivation. It is implied that this two-level hierarchy is biologically based.

Herzberg, Mausner, and Snyderman (1959) proposed the motivator-hygiene theory of motivation. Motivators are related to higher-order (psychological, growth) needs which correspond to Maslow's social, self-esteem, and self-actualization needs. Hygiene factors are maintenance-type (physiological, deficiency) needs which are related to Maslow's social, safety, and physiological needs. However, this theory has been subjected to extensive methodological criticism (Dunnette, Campbell, & Hakel, 1967; Hinton, 1968; King, 1970; Salancik & Pfeffer, 1977).

Further, Alderfer's (1969) ERG theory collapsed Maslow's five hierarchical levels into three: Existence, relatedness, and growth. Alderfer's theory suggests two processes: satisfaction-progression and frustration-regression.

Most of the research has utilized factor analytic techniques to test needs hierarchy theory (e.g., Beer, 1966; Blai, 1964; Friedlander, 1963; Schaffer, 1953). Wahba and Bridwell (1973) concluded that the empirical results of the factor analytic studies provide no consistent support for Maslow's theory as a whole. None of the studies has shown all of Maslow's five needs.

Two levels of needs were found in some studies: Lower-order (physiological) needs and higher-order (psychological) needs. Lawler argued that "it probably is not safe to assume more than a two-step hierarchy with existence and security needs at the lowest level and all the higher-order needs at the next level" (1973, p. 34). He further stated that "once a need appears, it does seem to persist until it is satisfied or the satisfaction of the lower-order needs is threatened" (1973, p. 34). Based on these studies conducted at peacetime (Herzberg et al., 1959; Lawler, 1973; Maslow, 1968; Pinder, 1984; Wahba & Bridwell, 1973), a two-step hierarchy appears to be a reasonable one. The factor structures of needs will be explored in the present study.

In the literature, very few researchers have paid attention to the physiological needs and security needs in their studies (Ivancevich, 1969; Lawler & Suttle, 1972; Porter, 1961; Slocum, 1971; Wanous & Zwany, 1977). The two-level theory "cannot be adequately tested" because they had "no data on the

satisfaction of lower level needs" (Lawler & Suttle, 1972, p. 286). It is necessary "to develop a different set of items and to see if they yield data that are more supportive of need hierarchy theory" (1972, p. 283). There is a dearth of empirical research concerning the importance of needs related to food, water, basic physiological needs, the security and safety of the individual, family, and the country, especially during the war.

Peacetime vs. Wartime

Most people in the United States have lived in an affluent society and have enjoyed the peace provided by the nation after several decades of peacetime. Because most people's basic needs (physiological/hygiene needs) are satisfied during peacetime, American people are concerned about their higher-order (psychological/growth/motivator) needs (cf. Herzberg et al., 1959; Lawler, 1973; Maslow, 1968; Porter, 1961; Wahba & Bridwell, 1973).

Very limited research is available concerning human needs during the war (cf. Hobfoll, London, & Orr, 1988; Hobfoll, Spielberger, Breznitz, Figley, Folkman, Lepper-Green, Meichenbaum, Milgram, Sandler, Sarason, & van der Kolk, 1991). It has been suggested that "war is one of the greatest stressors known to humankind" (Hobfoll et al., 1988, p. 318). "Need-satisfaction models implicitly deny one important human potential--adaptability, the ability to cope with a variety of circumstances" (Salancik & Pfeffer, 1977, p. 440). People's cognitive and information processing capabilities during the war should be investigated.

The presence of war may have significant impacts on the well-being of individuals. January 15, 1991 was the deadline that the United Nations has set for Iraqi forces to withdraw from Kuwait. After that date, the Gulf War started. People in the U.S. were several thousand miles away from the war. However, extensive coverage, analyses, and comments of the Gulf War appeared on television, radio, newspaper, and magazines brought the war, the harsh uncertainty, and stress to home.

There is practically nothing in Maslow's, Alderfer's, and Herzberg's models that will help the researcher predict possible changes (factor structures and means) of the human needs during the War. The only clue is the frustration-regression process offered by Alderfer's (1969) ERG model. Thus, the frustration of needs may lead to the importance of needs.

Recently, Tang and Ibrahim (1994) examined the importance of human needs during retrospective peacetime and the Persian Gulf War using a sample of employees in the Middle East. They found reasonable reliability and validity for the measurement of the importance of needs. Based on exploratory factor analyses, Tang and Ibrahim (1994) found three factors for the importance of needs during peacetime and the Persian Gulf War. Although the number of factors does not change, the factor structures of needs do change from peacetime to wartime.

Further, no significant differences have been found among Mideastern workers' ratings of safety of my own life, safety of my family, and safety of my country during peacetime. However, during the war, they consider safety of one's own life as

significantly less important than the safety of one's family and one's county. These findings reflect Mideastern society's group solidarity or Arab tribal values (Badawy, 1980) and the notion that Mideastern people's welfare and fate depend on the actions of their family and the country (Ali & Al-Shakhis, 1985). Therefore, people in the Middle East emphasize group solidarity rather than individuality.

Some researchers suggest that although it has been impossible to measure the importance of needs before the start of the war (i.e., during peacetime), it is possible to measure it during peacetime after the war. Following these suggestions, Tang and Wu (1994) have collected additional data concerning the importance of needs during "peacetime" in 1992 and 1993.

Data were collected from 75 workers (school teachers, engineers, and workers employed in the areas of computers, communication, international businesses, and manufacturing) in Taiwan in the summer of 1992 (one year after the war) and from 73 U.S. citizens (bank employees, school teachers, employees at Saturn in Spring Hill, Tennessee, and MBA students with full-time employment experience in a regional state university) in 1993 (two years after the war). Results of factor analysis based on these 148 subjects show that there are two factors concerning the importance of needs during peacetime: Higher-order/psychological needs and lower-order/physiological needs (Tang & Wu, 1994).

Recently, Taiwan, Republic of China, has been recognized as one of the four little dragons in Asia. Due to its economic growth and development, Taiwan has become the 15th largest

trading nation in the world (as of the end of 1990) with total trade amounts to US$121 billion. Further, Taiwan is the world's second highest in foreign exchange reserves (The Republic of China on Taiwan in the 1990s, 1991; Tang, 1993).

People in Taiwan have been highly influenced by the "Western culture". It appears that people in Taiwan may have perceptions concerning the importance of needs that are similar to those in the U.S. Tang and Wu's (1994) study involved subjects from both Taiwan and U.S.

Based on these studies, two factors have been identified concerning the importance of needs during peacetime in the U.S. and Taiwan sample (Tang & Wu, 1994) and three factors in the Mideastern sample (Tang & Ibrahim, 1994). Further, the factor structure concerning the importance of needs does change from the retrospective peacetime to the wartime for the Middle East sample (Tang & Ibrahim, 1994).

In the present study, students in the U.S. will be examined. Due to the cultural similarity and the sample, it is plausible that the factor structures of human needs in the present study will be similar to those found in Tang and Wu (1994). On the other hand, there are significant cultural differences between people in the United States and those in the Middle East. It is plausible that the factor structures of needs in the present study will be different from that of the Mideastern sample. Moreover, factor structures during wartime may be different from that of peacetime for subjects in the present sample.

Finally, in the present study, the researcher will examine all these needs in general and will not be specifically testing Maslow's, Alderfer's, or Herzberg's model of needs. Research on the number of levels of human needs is mixed. Therefore, given the state of the literature, exploratory factor analyses will be employed to examine data. No specific number of needs will be predicted. All these needs will be examined on an exploratory basis.

Group solidarity, stemming originally from Arab tribal values, is probably the most important characteristic of Mideastern society (Badawy, 1980). Thus, Mideastern people value social needs and the welfare of others (Tang & Ibrahim, 1994).

Americans value individualism rather than collectivism. It is speculated that, during peacetime, the importance related to the safety of the country may have been taken for granted. It is predicted that American college students may perceive that the safety of their own country is less important than the safety of their own life during peacetime.

When the country is involved in a major international conflict, the safety of the country will become highly important and salient to citizens. Without the security provided by the country, security for the individual and the family may not exist. Based on this rationale, it is expected that there will be a significant increase from retrospective peacetime to the wartime on the importance related to the safety of the country.

Having Relatives and Friends Involved in the War and Stress

Life stress has been repeatedly researched since the pioneering work done by Holmes and Rahe (1967). Most of the research in this area has focused on the relationship between stressful life events and physical or psychological illness (Bhagat, McQuaid, Lindholm, & Segovis, 1985; Holmes & Rahe, 1967; Tang & Hammontree, 1992). According to Holmes and Masuda (1974), life stress is related to many serious events happened in life. The highest number was assigned to the most serious event-death of spouse (100 points). Death of a close family member received 63 points, while death of a close friend was 37 points. Based on the information provided above, it can be argued that students who have spouse, relatives, and close friends in the Middle East during the war will experience a higher level of stress than those who do not. Lower-order needs are threatened. Thereby, basic physiological needs, safety needs, and social needs may become more important for these subjects.

Method

The Timing and Background of The Present Research

This study was conducted at a very critical time of the Persian Gulf War in 1991. The present authors did not have any control over when the Persian Gulf War was to start. An important fact related to the war was that the United Nations set the deadline on January 15, 1991 for Iraqi soldiers to withdraw from Kuwait.

It was reasonable, at least to the present researcher, to start the data collection on January 15, 1991 in the Middle East

in order to study the effect of Persian Gulf War on people's needs. It was unforeseeable that the Persian Gulf War started the next day (January 16, 1991). Our data were collected between January 16 and April 30, 1991. All subjects have experienced the stress caused by the Persian Gulf War.

The opportunity to collect peacetime data was quite limited to say at least. It is also reasonable to believe that due to actual preparations and military buildup for the war, the media coverage, and the important deadline on January 15, 1991, people in the U.S. may have already experienced a high level of stress before the war. Therefore, even if we have collected our data before the January 15, 1991 deadline, we can not be sure that our data will actually reflect peacetime measures.

Hostility and war-related stress had begun on August 2, 1990 when Kuwait was occupied. Hostility only has varied as a matter of degree after that date. The true peacetime measure should have been taken before August 2, 1990. Unfortunately, it was not possible for the present researcher to collect data at that time. The retrospective peacetime measure may be the only feasible way to collect data during that time period.

In fact, there are three conceptually different types of change that can occur with self-report data: Alpha, beta, and Gamma (Terborg, Howard, & Maxwell, 1980). Alpha change represents an unbiased measure of variation between Time 1 and Time 2. Beta change refers to an observed variation in some state where the apparent change is due to an instrument that has been recalibrated by the participant between assessments. Gamma

change refers to a redefinition or reconceptualization by the subjects of the phenomenon that is measured. Terborg et al. (1980) stated that "to the extent that gamma change has occurred, it may be misleading to compare differences in Pre- and Post-intervention self-report data" (p. 110).

Further, according to Howard and Dailey (1979), self-reported measure of change that used retrospective pretest to remove response-shift bias demonstrated significantly greater validity than measures of change that used traditional self-report pretests. An example will illustrate this point.

We may give a pretest to students before a computer training program. Since most students feel that they are very knowledgeable about computers, they may answer the pretest measures (Time 1) based on what they know. After the training program (Time 2), all students, then, realize how little they know about the new developments and technology related to computers before the training. Thereby, at Time 2, their responses on the pretest at Time 1 are no longer valid. The point is that at Time 2, students will be in a better position to judge the change of knowledge from Time 1 to Time 2.

The use of retrospective pretest will enable the researchers to remove response-shift bias. This may be directly related to our subjects' experiences of the Persian Gulf War.

In the present study, both "self-reported retrospective pretest" and "posttest" have been assessed "during the war". In fact, the present author argued that subjects in the present study were probably in an excellent position to evaluate the

importance of needs for peacetime and wartime after they had experienced the stress caused by the Persian Gulf War.

Salancik and Pfeffer (1977) stated that "[t]he priming phenomenon is based on the idea that an individual's attitude is derived from whatever information is available when asked about the attitude. The theory is that it is possible to present a standard set of information to individuals and then manipulate their recall of that information so that the basis of their attitudes can be varied systematically" (p. 450). Based on data presented by Tang and Ibrahim (1994) and Tang and Wu (1994), the present researcher has strong reasons to believe that the "retrospective peacetime measure of 1990", collected during the Persian Gulf War in 1991, will reflect real peacetime measure, collected in 1992 and 1993, or in 1990.

Subjects

Data were collected from students in two regional state universities and a military base in the southeastern United States between January 16 and April 30, 1991. The first state university is several miles away from a military base and has offered classes at the base. The second state university is only about 85 miles away from the military base. Many soldiers have been deployed to the Middle East from this military base during the war.

A total of 564 students (male, n = 184; female, n = 360; missing data, n = 20, return rate = 72.9%) returned usable data. The subjects had an average age of 23.52 years and had 14.64 years of education. Thus, the majority of these subjects fell

between the ages 18 and 25. There were 441 Caucasian, 52 African-American, 6 Hispanic, 14 Asian, and 3 American Indian. Further, 91 subjects were married, 406 were single, and 16 were divorced. Two separate questions were asked at the end of the questionnaire concerning their personal relations in war. First, of the 564 subjects, 86 students (15.25 percent) had spouse or relatives involved in the war, whereas 441 did not (missing data = 37). Second, a total of 280 students (49.65 percent) had close friends deployed to the Middle East during Desert Storm, while 247 did not (missing data = 37). Students with spouse, relatives, and friends in the Gulf War were combined as one group and those without as the other in the data analysis.

Measures

Porter's (1961) Need Satisfaction Questionnaire (NSQ) was modified and adopted for the present study. Specific items were included to measure physiological needs (3 items) and security and safety needs (3 items)(see Table 1). Items related to autonomy and one item related to self-esteem were deleted. The phrase "in my management position" was dropped from all items.

A 5-point 13-item rating scale was employed to measure the importance of needs with very unimportant (1), neutral (3), and very important (5) as anchors. The "direct" measure of needs satisfaction was used (cf. Wanous & Lawler, 1972). Thus, a high score indicates a high level of importance for a specific need. In order to avoid the possible priming effect, no reference was made concerning the Persian Gulf War. Subjects were given the

following instructions concerning the importance of needs for retrospective peacetime:

> Please think about the way you felt retrospectively. How important was this to you "one year ago"? Please think about yourself around the new year of 1990 when you answer these questions.

The instructions for the importance of needs during the Persian Gulf War (wartime) were as follows:

> Please answer items by indicating how you feel about them today. How important is this to you now?

Subjects' demographic variables (i.e., age, sex, income, and educational level) were also measured. All other items were measured using a 5-point scale (1 = Disagree Strongly, 3 = Neutral, and 5 = Agree Strongly) except the strain scale. The Cronbach's alpha for each of these measures is presented in Table 2. The Protestant Work Ethic was measured by the 4-item Pro-Protestant Work Ethic (PWE) scale developed by Blood (1969). Intrinsic and extrinsic job satisfaction were measured by the 20-item Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967).

Strain was measured by the 16-item scale (Horowitz, 1976). Subjects were asked to indicate whether they have experienced any of the following feelings in a one-month period using a 3-point scale (1 = Never, 2 = Once or twice, 3 = Three or more times). Some sample items are listed as follows: For example, my hands trembled enough to bother me. I was bothered by my heart beating hard. I was bothered by having an upset stomach or stomach ache.

Finally, war-related stress was measured by a 9-item scale. Some sample questions are presented as follows: I have suffered physically due to the Persian Gulf War. The Persian gulf War affected me emotionally. I have experienced a very high level of stress due to the Persian Gulf War.

Results

The main purpose of the present study was to examine the factor structures and mean differences of needs during peacetime and wartime. First, reliability and validity data related to the importance of needs scale will be investigated. Second, the factor structures of human needs will be examined using exploratory factor analyses. Third, mean differences at the item level between peacetime and wartime will be examined using *t* tests. Finally, the differences in needs and stress between students who had spouse, relative, and friends in the Middle East during the Desert Storm and those who did not will be analyzed using a multi-variate analysis of variance (MANOVA).

The Importance of Needs Scale

Table 1 shows the means and standard deviations of the importance of needs as measured by the 13-item scale during retrospective peacetime and wartime. Table 2 shows the means, standard deviations, Cronbach's alphas and correlations between the importance of 13 needs during the war and demographic variables, work-related variables, and stress-related variables. Thus, the construct validity (i.e., the nomological network of correlations) of the importance of needs can be examined.

Table 2 shows that age was negatively correlated with the importance of social needs (i.e., give help and develop friendships) and self-esteem (i.e., prestige). These results were very similar to research findings using the same questionnaire in a sample of employees in the Middle East (Tang & Ibrahim, 1994). Further, these results may support Hall and Nougaim's (1968) career stage model in that as people mature certain needs become less important to them.

Females tended to be affected by the Persian Gulf War more strongly than males. Thus, during the war, females rate many needs as more important than males. Income and educational level were not associated with the importance of needs among these students. War-related stress was significantly correlated with the importance of the basic physiological needs for me and my family.

It was also interesting to know that strain, reactions to stress, was negatively related to the importance of all needs. It is plausible that the importance of needs during Desert Storm, a cognitive component of the anxiety experience, is affected by the information during the war (cf. Morris & Fulmer, 1976). However, students in the U.S. are several thousand miles away from the Middle East and are not in a life-threatening situation. Thereby, their strain, a measure of physiological-affective elements of the anxiety experience (i.e., emotionality), will be less affected by Desert Storm. These data offer some support for the validity of the needs measure.

Factors of Needs During Peacetime

Data from 564 subjects were analyzed using a principal components factor analysis. Using a criterion of eigenvalues greater than one, followed by the varimax rotation, and items with a factor loading of .30 or greater, two factors (13 items, 64.9 per cent of the variance) were identified (please see Table 3). The Cronbach's alphas for Factors 1 and 2 were .89 and .91, respectively (see Table 3). It appears that the reliability measures for the importance of needs are satisfactory.

Factor 1 was related to the higher-order needs, i.e., social needs, self-esteem needs, and self-actualization needs, (7 items, 54.4 percent of the variance), whereas Factor 2 was related to the lower-order needs, i.e., physiological needs and safety needs, (6 items, 10.5 percent of the variance). Thus, all 13 items were included in these two factors.

These results support the findings in a sample of workers in Taiwan and U.S. using the same questionnaire (Tang & Wu, 1994). Moreover, results based on retrospective peacetime measure during the war in the present study are similar to that of real peacetime measure obtained one to two years after the war. It appears that during peacetime, there are two levels of needs: higher-order needs (psychological, growth) and lower-order needs (physiological, hygiene) (e.g., Herzberg et al., 1959; Lawler, 1973; Maslow, 1968).

Factor of Needs During Wartime

Wartime data were subjected to the same data analysis. Only one factor was identified. Table 4 shows that Factor 1 has 13

items (62.8 percent of the variance). The Cronbach's alpha for this factor was .95. It appears that during the Gulf War, the importance of all needs becomes very salient. That is, besides the items related to higher-order needs (i.e., social, self-esteem, and self-actualization), items related to security and safety needs and physiological needs become a part of Factor 1.

The inclusion of both lower-order needs and higher-order needs in one factor indicates that subjects of the present study are keenly aware of the importance of all needs. The subjects respond to all these 13 items in a similar manner. Thus, the factor structure concerning the importance of needs does change from the retrospective peacetime to the wartime.

Differences Between Peacetime and Wartime

Means, standard deviations, and *t*-test results for the importance of needs during the retrospective peacetime and Persian Gulf War are presented in Table 1. The 13 individual items are examined.

Insert Tables 1, 2, 3, 4, and 5 about here

First, Table 1 shows that during peacetime, the opportunity to develop close friendships was the most important need (M = 4.00) and the safety of the country was the least important one (M = 3.53) and the difference between the two was significant based on a paired two-tailed t test [t (559) = 7.97, $p < .001$]. Although these are the extreme cases, it offers some support to

the notion that these subjects' safety needs are less important, whereas the next higher (social) needs are more important.

The supreme importance to develop close friendships among college students can be explained by their age (M = 23.52 years old) and marital status (82.3% not married). For these participants, companion and love become important during that specific time period of their life (Hall & Nougaim, 1968).

Further, it was predicted that during peacetime, people in the United States will show a significantly higher level of importance concerning the safety of their own life than that of their country. The results showed that during peacetime, the safety of one's own life (M = 3.88) and family (M = 3.96) were both significantly more important than that of the country (M = 3.53) [t (558) = 6.97, $p < .001$; t (558) = 9.15, $p < .001$, respectively]. The importance of their own life and their family was about the same [t (557) = -.78, p = .075].

During wartime, the opportunity for personal growth and development was the most important need (M = 4.33), whereas the prestige and regard received from others were the least important one (M = 3.85). The difference between the two was significant [t (557) = 10.82, $p < .001$]. Thus, being able to survive and grow in the war has a new meaning, prestige has lost its meaning in the context of a war.

The safety of the family (M = 4.25) was considered as more important than their own life (M = 4.16) [t (559) = -2.82, p = .005]. However, no differences between the safety of their own life and the country [t (559) = -1.48, p = .139] and between the

safety of their family and the country [t (560) = 1.02, p = .309] were found.

Second, the differences between peacetime and wartime on the importance of 13 individual needs were examined. The results of paired two-tailed t tests indicated that the importance of all 13 needs during the war were significantly higher than that during peacetime. The most significant increase of importance came from the item related to the safety of the country which was rated as the least important need during peacetime. This was in the predicted direction. These subjects made an across-the-board increase concerning the importance of all needs during the war.

With vs. Without Relations in War

In the present data analysis, college students were divided into two groups. First, students with spouse, relatives, and friends in the Middle East were combined as one group. Second, those without were combined as the other group. A multi-variate analysis of variance (MANOVA) which examined the differences in the importance of needs and stress between college students with relations in war and those without showed that there was a significant difference in these variables [F (15, 454) = 2.03, p = .013, Wilks' Lambda = .937]. Further univariate F tests (df = 1, 486) showed that students with relations in war rate the following variables as more important than those without: Basic physiological needs, safety of my family, give help to others, develop friendships, and self-esteem (please see Table 5). Further, those with relations in war reported higher stress but lower strain than those without.

Discussion

The research data for the present study have been collected at a very critical time of the Persian Gulf War. This study may have only a modest chance of realistic replication. These rare data have been collected after the war started. Therefore, all subjects have experienced the stress caused by the Persian Gulf War.

The average age of these college students is 23.52. The majority of them are between ages 18 and 25. The results of this study show reasonable construct validity and reliability for the importance of needs scale. During peacetime, there are two factors related to the importance of 13 needs (higher-order needs and lower-order needs) supporting previous findings (Herzberg et al., 1959; Lawler, 1973; Maslow, 1968; Tang & Wu, 1994).

During the war, the importance of people's needs is elevated across-the-board to a significantly higher level showing the dramatic effect of the Persian Gulf War. These subjects respond to all items in a similar manner during the war causing all 13 items to merge into one factor. It appears that these needs are all important to them during the war. Thus, the differentiation between higher-order needs and lower-order needs disappears.

It is clear that college students do respond to peacetime and wartime measures differently and offer some comforting assurance concerning the subjects' ability to differentiate these measurements. Need theories can no longer deny the important human potential--adaptability, the ability to cope with a variety of circumstances (Salancik & Pfeffer, 1977).

Further, during peacetime, the most and the least important needs are the opportunity to develop close friendships and the security of the country, respectively. During the war, personal growth is the most important need, whereas prestige is the least important one.

These findings may be explained by Hall and Nougaim's (1968) career stage model and the age of the participants and by American's attitudes toward the country during peacetime. It appears that personal growth may have a new meaning to these participants, i.e., to survive during Desert Storm. In a major conflict, prestige has lost its meaning.

The results of the present study offer some support for the notion that people do take the safety of the country for granted during peacetime and recognize its importance during the Persian Gulf War. Thus, the safety of one's own life is significantly more important than the safety of the country during peacetime. During wartime, no significant difference between the two is found. Very few studies have examined the importance of these needs in the literature. Future research should replicate these findings.

As expected, college students with spouse, relatives, and friends in the war have experienced higher stress than those without. However, they also have reported less strain than those without relations in war. These findings can be explained by the following possibilities.

First, compare to other subjects in the sample, those with spouse, relatives, and friends in the war may be more aware of

the danger involved, may have experienced the same kind of stress in the past, and may be psychologically prepared for it, thereby, they have been less affected by the war. Second, Kobasa (1979) proposed hardiness as a resistance resource for stress. For hardy individuals, the stresses or life events are interpreted in such a way that the events are placed in a meaningful context and seen as controllable, challenging, and less alienating. It is possible that these students may have developed their resistance resource, i.e., hardiness, in handling the challenges and/or reframed the context. Unfortunately, hardiness is not examined in the present study.

Third, according to Selye (1956), the General Adaptation Syndrome consists of three stages: The alarm stage, the resistance stage, and the exhaustion stage. It is possible that these college students' spouse, relatives, and friends have been involved directly in Desert Storm, however, their own life and daily activities have not been seriously threatened by the Persian Gulf War. With a low level of stress, they may be in the "persistence stage" of the General Adaptation Syndrome and are still trying to "postpone" their reactions toward stress (Tang & Hammontree, 1992).

Fourth, it has been argued that worry, the cognitive component of anxiety depends on information available to people, whereas emotionality, the physiological-affective component is less directly influenced by cognitive considerations (Morris & Fulmer, 1976). It is plausible that recognizing the importance of needs and war-related stress during Desert Storm is a

cognitive component of the anxiety experience (i.e., worry) which is affected by the information during the war.

However, students in the U.S. are several thousand miles away from the Middle East and do not experience physical dangers themselves. Therefore, their strain, a measure of physiological-affective elements of the anxiety experience (i.e., emotionality), will be less affected by Desert Storm.

Fifth, they may develop the so-called "John Wayne Syndrome" (Reiser, 1974) so that they look strong in the public. Finally, it is speculated that they may have simply tried to deny the existence of these strains in answering the questionnaire. That is, claiming that they have experienced spells of dizziness, loss of appetite, trouble sleeping at night, etc. during Desert Storm does not look very good in front of their peers and may be considered less socially acceptable. Future studies should examine and test this hypothesis directly.

One major methodological weakness of the present investigation is that subjects' retrospective peacetime and wartime data concerning the importance of needs were measured all during the war. However, it may be considered as the strength of the present paper: The use of retrospective pretest in a study of self-reported measure of change will enable the researchers to remove response-shift bias and further enhance the validity of the study (Howard & Dailey, 1979). Subjects in the present study are probably in an excellent position to evaluate the importance of needs for peacetime and wartime after they have experienced the stress caused by the Persian Gulf War.

Recently, Golden (1992) reported that the accuracy of retrospective data is related to subjects' cognitive biases and their motive to enhance their positive image. He suggested that "researchers ought to avoid concluding that the retrospective account methodology should be categorically dismissed from future consideration" (1992, p. 856). There is no reason to suspect that the subjects of the present study will distort their ratings during peacetime to enhance their image.

Results suggest that the "retrospective peacetime measure of 1990", collected during the Desert Storm in 1991, reflects real peacetime measure, collected in 1992 and 1993 (Tang & Wu, 1994). It appears that the importance of needs measured retrospectively during the war is a valid measure which may remove response-shift bias and demonstrate the changes in this study.

The change of factor structures from two factors during peacetime to one factor during the war also reveals the amount of war-related stress experienced by these college-aged students. This result is different from a sample of employees in the Middle East (Tang & Ibrahim, 1994). It is plausible that Mideastern people may have witnessed the conflicts in the region over the years, the onset of the Persian Gulf War has created only minor changes concerning the importance of needs in their life.

The importance of needs does change over time based on some environmental factors. Results presented in this paper are very unique and may be different from work-related stress experienced by employees in an organization. A caution is warranted concerning generalizing the present findings to other settings.

References

Alderfer, C. P. (1969). A new theory of human needs. Organizational Behavior and Human Performance, 4, 142-175.

Ali, A., & Al-Shakhis, M. (1985). Managerial value systems for working in Saudi Arabia: An empirical investigation. Group & Organization Studies, 10, 135-151.

Badawy, M. K. (1980). Styles of Mideastern managers. California Management Review, 12 (2), 51-58.

Beer, M. (1966). Leadership, employee needs and motivation. Columbus: Bureau of Business Research, Ohio State University.

Bhagat, R. S., McQuaid, S.J., Lindholm, H., & Segovis, J. (1985). Total life stress: A multimethod validation of the construct and its effects on organizational valued outcomes and withdrawal behavior. Journal of Applied Psychology, 70, 202-214.

Blai, B. (1964). An occupational study of job satisfaction and need satisfaction. Journal of Experimental Education, 32, 383-388.

Campbell, J. P., Dunnette, M. D., Lawler, E. E., & Weick, K. E. (1970). Managerial behavior, performance, and effectiveness. New York: McGraw-Hill.

Campbell, J. P., & Pritchard, R. D. (1976). Motivation theory in industrial and organizational psychology. In M. D. Dunnette (Ed.). Handbook of industrial and organizational psychology. Chicago: Rand McNally College Publishing Co.

Dunnette, M. D., Campbell, J. P., & Hakel, M. D. (1967). Factors contributing to job satisfaction and dissatisfaction in six occupational groups. Organizational Behavior and Human Performance, 2, 143-174.

Friedlander, F. (1963). Underlying sources of job satisfaction. Journal of Applied Psychology, 47, 246-250.

Golden, B. R. (1992). The past is the past--or is it? The use of retrospective accounts as indicators of past strategy. Academy of Management Journal, 35, 848-860.

Hall, D. T., & Nougaim, K. E. (1968). An examination of Maslow's need hierarchy in an organizational setting. Organizational Behavior and Human Performance, 3, 12-35.

Herzberg, F., Mausner, B., & Snyderman, B. (1959). The motivation to work. New York: John Wiley & Sons.

Hinton, B. L. (1968). An empirical investigation of the Herzberg methodology and two-factor theory. Organizational Behavior Human Performance, 3, 286-309.

Hobfoll, S. E., London, P., & Orr, E. (1988). Mastery, intimacy, and stress resistance during war. Journal of Community Psychology, 16, 317-331.

Hobfoll, S. E., Spielberger, C. D., Breznitz, S., Figley, C., Folkman, S., Lepper-Green, B., Meichenbaum, D., Milgram, N. A., Sandler, I., Sarason, I., & van der Kolk, B. (1991). War-related stress: Addressing the stress of war and other traumatic events. American Psychologist, 46, 848-855.

Holmes, T. H., & Masuda, M. (1974). Life change and illness susceptibility. In B. S. Dohrenwend & B. P. Dohrenwend (Eds.), Stressful life events: Their nature and effects (pp. 45-72). New York: Wiley.

Holmes, T. H., & Rahe, R. H. (1967). Social readjustment rating scale. Journal of Psychosomatic Research, 11, 213-218.

Horowitz, M. J. (1976). Stress response syndromes. New York: Aronson.

Howard, G. S., & Dailey, P. R. (1979). Response-shift bias: A source of contamination of self-report measures. Journal of Applied Psychology, 64: 144-150.

Ivancevich, J. M. (1969). Perceived need satisfactions of domestic versus overseas managers. Journal of Applied Psychology, 53, 274-278.

King, N. (1970). A clarification and evaluation of the two-factor theory of job satisfaction. Psychological Bulletin, 74, 18-31.

Kobasa, S. C. (1979). Stressful life events, personality and health: An inquiry into hardiness. Journal of Personality and Social Psychology, 37, 1-11.

Lawler, E. E. (1973). Motivation in work organizations. Monterey, CA: Brooks/Cole Publishing Co.

Lawler, E. E., & Suttle, J. L. (1972). A causal correlational test of the need hierarchy concept. Organizational Behavior and Human Performance, 7, 265-287.

Maslow, A. H. (1954). Motivation and personality. New York: Harper.

Maslow, A. H. (1968). Toward a psychology of being. (2nd ed.). Princeton, NJ: Van Nostrand Reinhold.

Morris, L. W., & Fulmer, R. S. (1976). Test anxiety (worry and emotionality) changes during academic testing as a function of feedback and test importance. Journal of Educational Psychology, 68, 817-824.

Pinder, C. C. (1984). Work motivation: Theory, issues, and applications. Glenview, IL: Scott, Foresman and Co.

Porter, L. W. (1961). A study of perceived need satisfactions in bottom and middle management jobs. Journal of Applied Psychology, 45: 1-10.

Reiser, M. (1974). Some organizational stresses on policemen. Journal of Police Science and Administration, 2, 156-159.

The Republic of China on Taiwan in the 1990s. (1991, June). Board of Foreign Trade, Ministry of Economic Affairs.

Salancik, G. R., & Pfeffer, J. (1977). An examination of need-satisfaction models of job attitudes. Administrative Science Quarterly, 22, 427-456.

Selye, H. (1956). The stress of life. New York: McGraw-Hill.

Schaffer, R. H. (1953). Job satisfaction as related to need satisfaction in work. Psychological Monographs, 47, Whole no. 364.

Slocum, J. W. (1971). A comparative study of the satisfaction of American and Mexican Operatives. Academy of Management Journal, 14, 89-97.

Staw, B. M. (1974). Attitudinal and behavioral consequences of changing a major organizational reward: A natural field experiment. Journal of Personality and Social Psychology, 6, 742-751.

Szilagyi, A. D., & Wallace, M. J. (1990). Organizational behavior and performance. (5th ed.). Glenview, IL: Scott, Foresman/Little, Brown Higher Education.

Tang, T. L. P. (1993). The meaning of money: Extension and exploration of the money ethic scale in a sample of university students in Taiwan. Journal of Organizational Behavior, 14, 93-99.

Tang, T. L. P., & Hammontree, M. L. (1992). The effects of hardiness, police stress, and life stress on police officers' illness and absenteeism. Public Personnel Management, 21, 493-510.

Tang, T. L. P., & Ibrahim, A. H. S. (1994, July). The importance of human needs during retrospective peacetime and the Persian Gulf War: Employees in the Middle East. Paper presented at the 23rd International Congress of Applied Psychology, Madrid, Spain. Paper submitted for publication.

Tang, T. L. P., & Wu, G. M. T. (1994, April). The factor structure of needs importance. Paper presented at the 40th Annual Convention of the Southwestern Psychological Association, Tulsa, OK.

Terborg, J. R., Howard, G. S., & Maxwell, S. (1980). Evaluating planned organizational change: A method for assessing

alpha, beta, and gamma change. Academy of Management Review, 5, 109-121.

Wahba, M. A., & Bridwell, L. G. (1973). Maslow reconsidered: A review of research on the need hierarchy theory. Proceedings of the Thirty-third Annual Meeting of the Academy of Management, 514-520.

Wanous, J. P., & Lawler, E. E. (1972). Measurement and meaning of job satisfaction. Journal of Applied Psychology, 56, 95-105.

Wanous, J. P., & Zwany, A. (1977). A cross-sectional test of need hierarchy theory. Organizational Behavior and Human Performance, 78-97.

Weiss, D. J., Dawis, R. V., England, G. W., & Lofquist, L. H. (1967). Manual for the Minnesota Satisfaction Questionnaire. Minneapolis: University of Minnesota Industrial Relations Center.

Table 1

Means, Standard Deviations, and T-Test Results on the Importance of Needs (Peacetime vs. Wartime)

	Peacetime		Wartime			
Variable	M	SD	M	SD	t[a]	p
Physiological						
Food	3.60	1.33	3.90	1.20	-6.67	.000***
Water	3.54	1.39	3.92	1.23	-8.08	.000***
Basic needs	3.74	1.23	4.10	1.08	-7.93	.000***
Security and Safety						
Own life	3.88	1.23	4.16	1.09	-5.84	.000***
Family	3.96	1.23	4.25	1.11	-6.49	.000***
Country	3.53	1.26	4.22	1.18	-11.92	.000***
Social						
Give help	3.84	1.15	4.09	1.10	-5.49	.000***
Friendships	4.00	1.18	4.21	1.03	-4.62	.000***
Self-Esteem						
Self-Esteem	3.98	1.21	4.26	1.15	-6.02	.000***
Prestige	3.63	1.09	3.85	1.05	-4.80	.000***
Self-Actualization						
Accomplish	3.95	1.11	4.21	1.10	-5.81	.000***
Growth	3.97	1.22	4.33	1.07	-7.75	.000***
Fulfillment	3.92	1.20	4.17	1.12	-5.14	.000***

[a]Note. Two-tailed *t* test. The *df* for *t* tests varied between 549 and 562.

Table 2

Means, Standard Deviations, Cronbach's Alphas, and Correlations Between the Importance of Needs During the War and Demographic, Personality, and Work-Related Variables

Variable	Mean	SD	Alpha	1	2	3	4	5
1. Age	23.52	7.44		02	03	04	-01	04
2. Sex (Male = 0, Female = 1)				08*	07*	09*	08*	10*
3. Income	9,260.94	10,522.68		-06	-07	-00	-01	02
4. Education	14.64	1.69		02	-00	02	02	-00
5. Work Ethic	14.82	3.11	70	12*	15*	18*	25*	23*
6. MSQ-Int	43.51	8.46	86	17*	14*	17*	18*	21*
7. MSQ-Ext	19.51	5.32	84	08*	07	09*	10*	10*
8. Strain	9.24	9.82	93	-10*	-07	-07*	-12*	-16*
9. Stress	26.00	6.40	71	06	04	11*	04	01

Note. N = 564. For Income, N = 363. N varies between 361 and 563. All decimals have been omitted for correlations. *p < .05. For the 13 variables (human needs) across the top of the table, please see Table 1 (i.e., 1 = Food, 2 = Water, etc.).

Table 2 (Continued)

Means, Standard Deviations, Cronbach's Alphas, and Correlations Between the Importance of Needs During the War and Demographic, Personality, and Work-Related Variables

Variable	6	7	8	9	10	11	12	13
1. Age	-03	-13*	-09*	05	-07*	02	04	01
2. Sex	13*	14*	05	08*	05	07*	07*	07*
3. Income	01	-02	-08	-01	-01	01	-01	-01
4. Education	-01	00	-01	-03	-02	01	00	-01
5. Work Ethic	22*	21*	17*	20*	18*	29*	21*	27*
6. MSQ-Int	16*	23*	18*	22*	17*	24*	21*	19*
7. MSQ-Ext	11*	16*	15*	09*	11*	16*	11*	11*
8. Strain	-15*	-15*	-12*	-21*	-08*	-18*	-16*	-22*
9. Stress	06	01	-00	-05	01	-01	-04	-05

Note. N = 564. For Income, N = 363. N varies between 361 and 563. All decimals have been omitted for correlations. *p < .05. For the 13 variables (human needs) across the top of the table, please see Table 1 (i.e., 1 = Food, 2 = Water, etc.).

Table 3

Factors for the Importance of Needs (Peacetime)

Item	Factor I	Factor II
The feeling of worthwhile accomplishment	.82	
The feeling of self-fulfillment	.76	.31
The opportunity for personal growth and development	.74	.31
The opportunity to give help and offer support to other people	.72	
The opportunity to develop close friendships and share feelings with friends	.71	
The feeling of self-esteem	.70	
The prestige and regard received from others	.63	
The availability of water		.88
The availability of food		.87
The security and safety of my country		.74
The basic physiological needs for me and my family	.44	.70
The security and safety of my own life	.50	.65
The security and safety of my family	.54	.62
Variance Explained	54.4%	10.5%
Cronbach's alpha	.89	.91

Table 4

Factor for the Importance of Needs (Wartime)

Item	Factor I
The security and safety of my family	.87
The opportunity for personal growth and development	.85
The feeling of self-fulfillment	.85
The feeling of worthwhile accomplishment	.84
The feeling of self-esteem	.83
The opportunity to give help and offer support to other people	.80
The security and safety of my own life	.80
The basic physiological needs for me and my family	.80
The security and safety of my country	.79
The opportunity to develop close friendships and share feelings with friends	.78
The availability of water	.73
The availability of food	.72
The prestige and regard received from others	.63
Variance Explained	62.8%
Cronbach's alpha	.95

Table 5

Means, Standard Deviations, and Univariate F-Test Results on the Importance of Needs (With Relations in War vs. Without Relations in War)

	With		Without			
Variable	M	SD	M	SD	F[a]	p
Physiological						
Food	4.00	1.15	3.87	1.23	1.24	.267
Water	3.98	1.20	3.86	1.28	1.01	.316
Basic needs	4.22	1.04	4.02	1.14	4.12	.043*
Security and Safety						
Own life	4.27	1.06	4.09	1.10	2.97	.086
Family	4.40	1.06	4.18	1.16	4.59	.033*
Country	4.37	1.12	4.18	1.17	2.97	.085
Social						
Give help	4.25	1.03	4.04	1.08	4.86	.028*
Friendships	4.39	0.97	4.13	1.03	8.23	.004*
Self-Esteem						
Self-Esteem	4.44	0.98	4.20	1.22	5.44	.020*
Prestige	3.90	1.09	3.81	0.98	0.86	.355
Self-Actualization						
Accomplish	4.33	0.97	4.14	1.20	3.96	.047*
Growth	4.43	0.97	4.33	1.10	0.97	.325
Fulfillment	4.30	1.00	4.12	1.08	3.13	.078
Stress						
Strain	8.12	8.24	9.89	10.76	4.08	.044*
Stress	26.89	6.14	25.36	6.34	7.11	.008*

Note. [a] Univariate F test with df (1, 486). *p < .05.
MANOVA: F (15, 454) = 2.03, p = .013, Wilks' Lambda = .937.